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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F R § 1 53(b))

Attorney Docket No.	1002-124B
First Inventor or Application Identifier	Burt, et al.
Title	SEAWALL PANEL
Express Mail Label No.	EL039910373US

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [X] * Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing)
2. [X] Specification [Total Pages 14] (preferred arrangement set forth below)
   - Descriptive title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings (if filed)
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
3. [X] Drawing(s) (35 U.S.C. 113) [Total Sheets 11]
4. Oath or Declaration [Total Pages 3]
   a. [X] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 C.F.R. § 1.63(d)) (for continuation/divisional with Box 17 completed) [Note Box 5 below]
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C F R. §§ 1.63(d)(2) and 1.33(b).
5. [ ] Incorporation By Reference (useable if Box 4b is checked) The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. [ ] Microfiche Computer Program (Appendix)
7. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
   a. [ ] Computer Readable Copy
   b. [ ] Paper Copy (identical to computer copy)
   c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. [ ] Assignment Papers (cover sheet & document(s))
9. [ ] 37 C.F.R.§3.73(b) Statement (when there is an assignee) [ ] Power of Attorney
10. [ ] English Translation Document (if applicable)
11. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
12. [ ] Preliminary Amendment
13. [X] Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
14. [ ] * Small Entity Statement(s) (PTO/SB/09-12) [ ] Statement filed in prior application, Status still proper and desired
15. [ ] Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. [ ] Other: .....

NOTE FOR ITEMS 1 & 14: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment.
    [ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No _____/_____
    Prior application information: Examiner _____ Group / Art Unit: _____

18. CORRESPONDENCE ADDRESS

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Signature	Jeffrey S. Standley	Date	11/25/98

Burden Hour Statement: This form is estimated to take 0.2 hours to complete Time will vary depending upon the needs of the individual case Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS SEND TO Assistant Commissioner for Patents Box Patent Application, Washington, DC 20231

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FEE TRANSMITTAL

Patent fees are subject to annual revision on October 1.
These are the fees effective October 1, 1997.
Small Entity payments must be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12.
See 37 C.F.R. §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT ($) 760.00

Complete if Known	
Application Number	
Filing Date	November 25, 1998
First Named Inventor	Burt, et al.
Examiner Name	
Group / Art Unit	
Attorney Docket No.	1002-124B

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number
Deposit Account Name

☐ Charge Any Additional Fee Required Under 37 C.F.R. §§ 1.16 and 1.17

☐ Charge the Issue Fee Set in 37 C.F.R. § 1.18 at the Mailing of the Notice of Allowance

2. ☒ Payment Enclosed:
☒ Check ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	790	201	395	Utility filing fee	760.
106	330	206	165	Design filing fee	
107	540	207	270	Plant filing fee	
108	790	208	395	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 760.00

2. EXTRA CLAIM FEES

		Extra Claims		Fee from below	Fee Paid
Total Claims	20	-20** = 0	X	18	= 0
Independent Claims	3	- 3** = 0	X	78	= 0
Multiple Dependent					= 0

**or number previously paid, if greater; For Reissues, see below

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	22	203	11	Claims in excess of 20
102	82	202	41	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	82	209	41	** Reissue independent claims over original patent
110	22	210	11	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	950	217	475	Extension for reply within third month	
118	1,510	218	755	Extension for reply within fourth month	
128	2,060	228	1,030	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,320	241	660	Petition to revive - unintentional	
142	1,320	242	660	Utility issue fee (or reissue)	
143	450	243	225	Design issue fee	
144	670	244	335	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	790	246	395	Filing a submission after final rejection (37 CFR 1.129(a))	
149	790	249	395	For each additional invention to be examined (37 CFR 1.129(b))	

Other fee (specify) _____

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY

				Complete (if applicable)	
Typed or Printed Name	Jeffrey S. Standley			Reg. Number	34,021
Signature	Jeffrey S. Standley	Date	11/25/98	Deposit Account User ID	

Express Mail No.: EL039910373US

Deposit Date: November 25, 1998

APPLICATION FOR UNITED STATES LETTERS PATENT

FOR

SEAWALL PANEL

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Miguel Terc

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SEAWALL PANEL

Inventors: Kevin T. Burt
Miguel Terc

This application claims the benefit of U.S. Provisional Application No. 60/066,588, filed November 26, 1997.

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates generally to a retaining panel for a body of water and, more particularly, to a retaining panel that may protect against a bounding shore with its top preferably extending above ground level and its bottom preferably anchored down into the ground below the water bottom. A preferred embodiment of a retaining panel of the present invention may be adapted for use as a seawall, a ground erosion barrier, a barrier against land erosion caused by waterways such as rivers, streams, ponds, lakes, seas, and oceans, a shoreline bulkhead, a wave breaker, a retaining wall, a footbridge, or as a panel in a wall structure for any other suitable use. A retaining panel of the present invention may be made from a variety of materials using a variety of techniques which will become apparent to one of ordinary skill in the art upon reading this disclosure. For example, a retaining panel of the present invention may comprised of extruded plastic or other similar material.

Over the years, there has existed the problem of land erosion caused by waterways such as rivers, streams, ponds, lakes, seas, and oceans. In order to limit and/or prevent the land erosion, efforts have been made to provide a series of seawall panels that are laterally aligned, interconnected, and anchored into the ground so as to provide a barrier against a waterway. The seawall panels may be subjected to enormous pressures and loads which may ultimately break

the connection between adjacent seawall panels. Consequently, the barrier may become less effective over time, and individual seawall panels may have to be repaired or replaced. This may be expensive, and it may require the use of special heavy construction equipment.

In light of the costs of repairing barriers made from seawall panels, a need exists for seawall panels that are better adapted to endure various pressures and loads. Another need exists for minimizing the pressures and loads that are applied on the joints between adjacent seawall panels. There is also a need for minimizing the number of seawall panels required to make a barrier so that there are fewer joints that are subjected to various pressures and loads. Still another need exists for providing seawall panels that are easier to install and replace.

The present invention satisfies some or all of these needs. A preferred embodiment of the retaining panel comprises a central portion, two side portions, and two flanges. It is preferred that the retaining panel is of one-piece construction. The central portion has a first end and a second end. The first side portion is integrally connected to and extends rearwardly at a first angle from the first end of the central portion. Similarly, the second side portion is integrally connected to and extends rearwardly at a second angle from the second end of the central portion. The first flange is integrally connected to and extends from a rear end of the first side portion, and the second flange is integrally connected to and extends from a rear end of the second side portion. Each of the flanges has a proximal portion and a distal portion. The distal portion of the first flange defines a female connecting portion, and the distal portion of the second flange defines a male connecting portion. As a result, the retaining panel is preferably adapted to be connected to a substantially similar, adjacent retaining panel by inserting its male connecting portion into the female connecting portion of the adjacent retaining panel. It is further preferred

that the retaining panel is adapted to be interlocked with the adjacent retaining panel by inserting the male connecting portion of the retaining panel into the female connecting portion of the adjacent retaining panel.

It is preferred that the first angle and the second angle are approximately equal. It is further preferred that the lengths of the first and second side portions are approximately equal. The first flange may extend from the first side portion at a third angle, and the second flange may extend from the second side portion at a fourth angle. The third and fourth angles are preferably about equal. It is preferred that the central portion is approximately parallel to the proximal portions of the first flange and the second flange.

A preferred embodiment of a retaining panel of the present invention may have a substantially uniform thickness. It should be recognized, however, that the thickness of a retaining panel of the present invention may vary. It is also preferred that an intermediate portion of the central portion has a substantially level outer surface approximately between the first end and the second end. Similarly, an intermediate portion of the first side portion may have a substantially level outer surface approximately between the first end of the central portion and the rear end of the first side portion, and an intermediate portion of the second side portion may have a substantially level outer surface approximately between the second end of the central portion and the rear end of the second side portion. Moreover, the proximal portion of the first flange may have a substantially level outer surface approximately between the rear end of the first side portion and the distal portion of the first flange, and the proximal portion of the second flange may have a substantially level outer surface approximately between the rear end of the second side portion and the distal portion of the second flange.

A retaining panel of the present invention may be made from a variety of materials. For example, a retaining panel of the present invention may be made from plastic, wood, steel, other sufficiently rigid materials, or combinations of these materials. A preferred embodiment of a retaining panel of the present invention is comprised of a plastic material such as polyvinyl chloride (PVC). A plastic material preferably prevents and/or withstands heat, cold, pressure exerted by the water, pressure exerted by the land, corrosion, and sunlight. A plastic material also preferably makes a retaining panel of the present invention relatively lightweight, easy to install, and easy to repair or replace. In addition, conventional extrusion or molding processes may be utilized to make a retaining panel of the present invention from a plastic material.

In addition to the novel features and advantages mentioned above, other objects and advantages of the present invention will be readily apparent from the following descriptions of the drawings and preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a cross sectional view of a preferred embodiment of a retaining panel of the present invention;

Figure 2 is a top perspective view of the retaining panel of Figure 1;

Figure 3 is a bottom perspective view of the retaining panel of Figure 1;

Figure 4 is a top plan view of the retaining panel of Figure 1;

Figure 5 is a bottom plan view of the retaining panel of Figure 1;

Figure 6 is a left side elevational view of the retaining panel of Figure 1;

Figure 7 is a right side elevational view of the retaining panel of Figure 1;

Figure 8 is a cross sectional view of a preferred embodiment of an installation that may utilize a preferred embodiment of a retaining panel of the present invention;

Figure 9 is another cross sectional view of the installation shown in Figure 7;

Figure 10 is a cross sectional view with dimensions of another preferred embodiment of a retaining panel of the present invention;

Figure 11 is a cross sectional view with dimensions of the left distal portion of the retaining panel of Figure 10; and

Figure 12 is a cross sectional view with dimensions of the right distal portion of the retaining panel of Figure 10.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT(S)

The present invention is directed to a retaining panel that may protect against a bounding shore with its top preferably extending above ground level and its bottom preferably anchored down into the ground below the water bottom. Figures **1** through **7** illustrate a preferred embodiment of a retaining panel of the present invention. The retaining panel **10** includes a central portion **20**, a first side portion **30**, a second side portion **40**, a first flange **50**, and a second flange **60**. As shown in these figures, the retaining panel **10** is preferably of one-piece construction for maximum durability and longevity. A one-piece construction preferably eliminates unnecessary joints which may eventually fail under the pressures and loads in the field.

The retaining panel has an outer surface **12**. The central portion **20** has a first end **22** and a second end **24**. The first side portion **30** is integrally connected to and extends at an angle **a** from the first end **22**. Similarly, the second side portion **40** is integrally connected to and extends

at an angle **b** from the second end **24**. The length of the first side portion **30** is preferably about equal to the length of the second side portion **40**, and the angle **a** is preferably about equal to the angle **b**. However, the length of the first side portion **30** may be different than the length of the second side portion **40**, the angle **a** may be different than the angle **b**. For instance, the aforementioned angles and lengths may vary to enable interconnected retaining panels to conform to the shape of the land.

The first flange **50** is integrally connected to and extends from a rear end **32** of the first side portion **30**, and the second flange **60** is integrally connected to and extends from a rear end **42** of the second side portion **40**. The first flange **50** extends from the first side portion **30** at an angle **c**, and the second flange **60** extends from the second side portion **40** at an angle **d**. The angle **c** is preferably about equal to the angle **d**. However, it should be recognized that the angle **c** may vary from the angle **d**. For example, the angle **c** may be different than the angle **d** so that adjacent retaining panels may be interconnected as will be explained hereinafter.

The first flange **50** has a proximal portion **52** and a distal portion **54**. Similarly, the second flange **60** has a proximal portion **62** and a distal portion **64**. The distal portion **54** defines a female connecting portion **56**, and the distal portion **64** defines a male connecting portion **66**. As a result, the retaining panel **10** is preferably adapted to be connected to a substantially similar, adjacent retaining panel by inserting its male connecting portion **66** into the female connecting portion of the adjacent retaining panel. It is further preferred that the female connecting portion **56** and the male connecting portion **66** enable the retaining panel **10** to be interlocked with the retaining panel. Those skilled in the art should recognize that the distal portions **54, 64** may be of various shapes.

Figures **8** and **9** show an example of a barrier installation which may utilize a preferred embodiment of a retaining panel of the present invention. A preferred embodiment of a retaining panel of the present invention may also work with other types of barrier installations. In addition, a preferred embodiment of a retaining panel of the present invention may be interconnected to form other types of wall structures.

EXAMPLE

A retaining panel of the present invention was manufactured using conventional extrusion equipment. The dimensions of the retaining panel are illustrated in Figures **10** through **12**. The retaining panel was made from a weatherable, impact modified PVC having a minimum cell classification of 1-4013-13-0101 and the following material and mechanical properties:

Material Properties	Value
Specific Gravity	1.44
IZOD Impact, ft. lb./in. notch	15
Tensile Yield Strength	6,300
Tensile Modulus, psi	360,000
Flexural Yield Strength, psi	12,000
Flexural Modulus, psi	380,000
DTUL@264 psi, degrees C	72

Mechanical Properties	Value
Coverage Per Sheet (in.)	24.00
Depth of Cross Section (in.)	9.00
Wall Thickness (in.)	0.28
Section Modulus (cu. in./ft.)	19.70
Allowable Moment (ft. lbs./linear ft.)	4378
Moment of Inertia	88.65
Allowable Shear (lb./ft.)	2433

The retaining panel offered the following benefits: (1) consistent physical properties; (2) a desired strength-to-weight ratio; (3) reduces installation time and costs due to increased width

as compared to other retaining panels; (4) effective distribution of loads throughout the panel; (5) interlocking at the rear where stress is lower; (6) U-shape design's higher section modulus allows greater spacing between wales to reduce the number required in certain situations; (7) the strength of the U-shape permits cantilevering in some applications; (8) easy to drive and can be driven one at a time as opposed to Z-shaped panels which may require driving two at a time; (9) little or no rotation during installation; (10) interlocks are not readily visible; (11) interlocking design allows inside or outside curves to follow natural contours; and (12) environmentally safe, virtually maintenance free, no need to paint, and impervious to sunlight, saltwater, and marine borers.

The preferred embodiments herein disclosed are not intended to be exhaustive or to unnecessarily limit the scope of the invention. The preferred embodiments were chosen and described in order to explain the principles of the present invention so that others skilled in the art may practice the invention. Having shown and described preferred embodiments of the present invention, those skilled in the art will realize that many variations and modifications may be made to affect the described invention. Many of those variations and modifications will provide the same result and fall within the spirit of the claimed invention. It is the intention, therefore, to limit the invention only as indicated by the scope of the claims.

WHAT IS CLAIMED IS:

1. A retaining panel for a body of water, the retaining panel comprising:

a continuous central portion having a first end and a second end;

a first side portion integrally connected to and extending rearwardly at a first angle from said first end of said central portion, said first side portion having a rear end;

a second side portion integrally connected to and extending rearwardly at a second angle from said second end of said central portion, said second side portion having a rear end;

a first flange integrally connected to and extending from said rear end of said first side portion, said first flange having a proximal portion and a distal portion, said distal portion of said first flange defining a female connecting portion; and

a second flange integrally connected to and extending from said rear end of said second side portion, said second flange having a proximal portion and a distal portion, said distal portion of said second flange defining a male connecting portion;

wherein said retaining panel is adapted to be connected to a substantially similar, adjacent retaining panel by inserting said male connecting portion of said retaining panel into said female connecting portion of said adjacent retaining panel.

2. The retaining panel of claim 1 wherein said retaining panel is adapted to be interlocked with said adjacent retaining panel by inserting said male connecting portion of said retaining panel into said female connecting portion of said adjacent retaining panel.

3. The retaining panel of claim 1 wherein said retaining panel is of substantially uniform thickness.

4. The retaining panel of claim 1 wherein an intermediate portion of said central portion has a substantially level outer surface approximately between said first end and said second end.

5. The retaining panel of claim 1 wherein an intermediate portion of said first side portion has a substantially level outer surface approximately between said first end of said central portion and said rear end of said first side portion.

6. The retaining panel of claim 1 wherein an intermediate portion of said second side portion has a substantially level outer surface approximately between said second end of said central portion and said rear end of said second side portion.

7. The retaining panel of claim 1 wherein said proximal portion of said first flange has a substantially level outer surface approximately between said rear end of said first side portion and said distal portion of said first flange.

8. The retaining panel of claim 1 wherein said proximal portion of said second flange has a substantially level outer surface approximately between said rear end of said second side portion and said distal portion of said second flange.

9. The retaining panel of claim 1 wherein said first angle is approximately equal to said second angle.

10. The retaining panel of claim 1 wherein the length of said first side portion is approximately equal to the length of said second side portion.

11. The retaining panel of claim 10 wherein said central portion is approximately parallel to said proximal portions of said first flange and said second flange.

12. The retaining panel of claim 1 wherein said central portion is approximately parallel to said proximal portions of said first flange and said second flange.

13. The retaining panel of claim 1 wherein said retaining panel is comprised of polyvinyl chloride.

14. A retaining panel for a body of water, said retaining panel comprising:

a continuous central portion having a first end and a second end;

a first side portion integrally connected to and extending at a first angle from said first end of said central portion, said first side portion having a rear end;

a second side portion integrally connected to and extending at a second angle from said second end of said central portion, said second angle approximately equal to said first angle, said second side portion having a rear end;

a first flange integrally connected to and extending at a third angle from said rear end of said first side portion, said first flange having a proximal portion and a distal portion, said distal portion of said first flange defining a female connecting portion; and

a second flange integrally connected to and extending at a fourth angle from said rear end of said second side portion, said second flange having a proximal portion and a distal portion, said distal portion of said second flange defining a male connecting portion;

wherein said retaining panel is adapted to be connected to a substantially similar, adjacent retaining panel by inserting said male connecting portion of said retaining panel into said female connecting portion of said adjacent retaining panel.

15. The retaining panel of claim 14 wherein said retaining panel is adapted to be interlocked with said adjacent retaining panel by inserting said male connecting portion of said retaining panel into said female connecting portion of said adjacent retaining panel.

16. The retaining panel of claim 14 wherein said third angle is approximately equal to said fourth angle.

17. The retaining panel of claim 14 wherein the length of said first side portion is approximately equal to the length of said second side portion.

18. The retaining panel of claim 14 wherein said retaining panel is comprised of polyvinyl chloride.

19. A retaining panel of one-piece construction for a body of water, said retaining panel comprising:

a central portion having a first end and a second end;

a first side portion integrally connected to and extending at a first angle from said first end of said central portion, said first side portion having a rear end;

a second side portion integrally connected to and extending at a second angle from said second end of said central portion, said second side portion having a rear end, said second angle approximately equal to said first angle, the length of said second side portion approximately equal to the length of said first side portion;

a first flange integrally connected to and extending at a third angle from said rear end of said first side portion, said first flange having a proximal portion and a distal portion, said distal portion of said first flange defining a female connecting portion; and

a second flange integrally connected to and extending at a fourth angle from said rear end of said second side portion, said fourth angle approximately equal to said third angle, said second flange having a proximal portion and a distal portion, said distal portion of said second flange defining a male connecting portion;

wherein said retaining panel is adapted to be interlocked with a substantially similar, adjacent retaining panel by inserting said male connecting portion of said retaining panel into said female connecting portion of said adjacent retaining panel.

20. The retaining panel of claim 19 wherein said retaining panel is comprised of polyvinyl chloride.

ABSTRACT

The present invention is directed to a retaining panel of one-piece construction for a body of water. A preferred embodiment of the retaining panel comprises a central portion, two side portions, and two flanges. The central portion has a first end and a second end. One side portion is integrally connected to and extends at a first angle from the first end of the central portion. Similarly, the other side portion is integrally connected to and extends at a second angle from the second end of the central portion. It is preferred that the first angle and the second angle are approximately equal. It is further preferred that the lengths of the first and second side portions are approximately equal. One flange is integrally connected to and extends at a third angle from a rear end of one side portion, and the other flange is integrally connected to and extends at a fourth angle from a rear end of the other side portion. It is preferred that the third and fourth angles are approximately equal. Each of the flanges has a proximal portion and a distal portion. The distal portion of one of the flanges defines a female connecting portion, and the distal portion of the other flange defines a male connecting portion. The retaining panel is preferably adapted to be interlocked with a substantially similar, adjacent retaining panel by inserting its male connecting portion into the female connecting portion of the adjacent retaining panel.

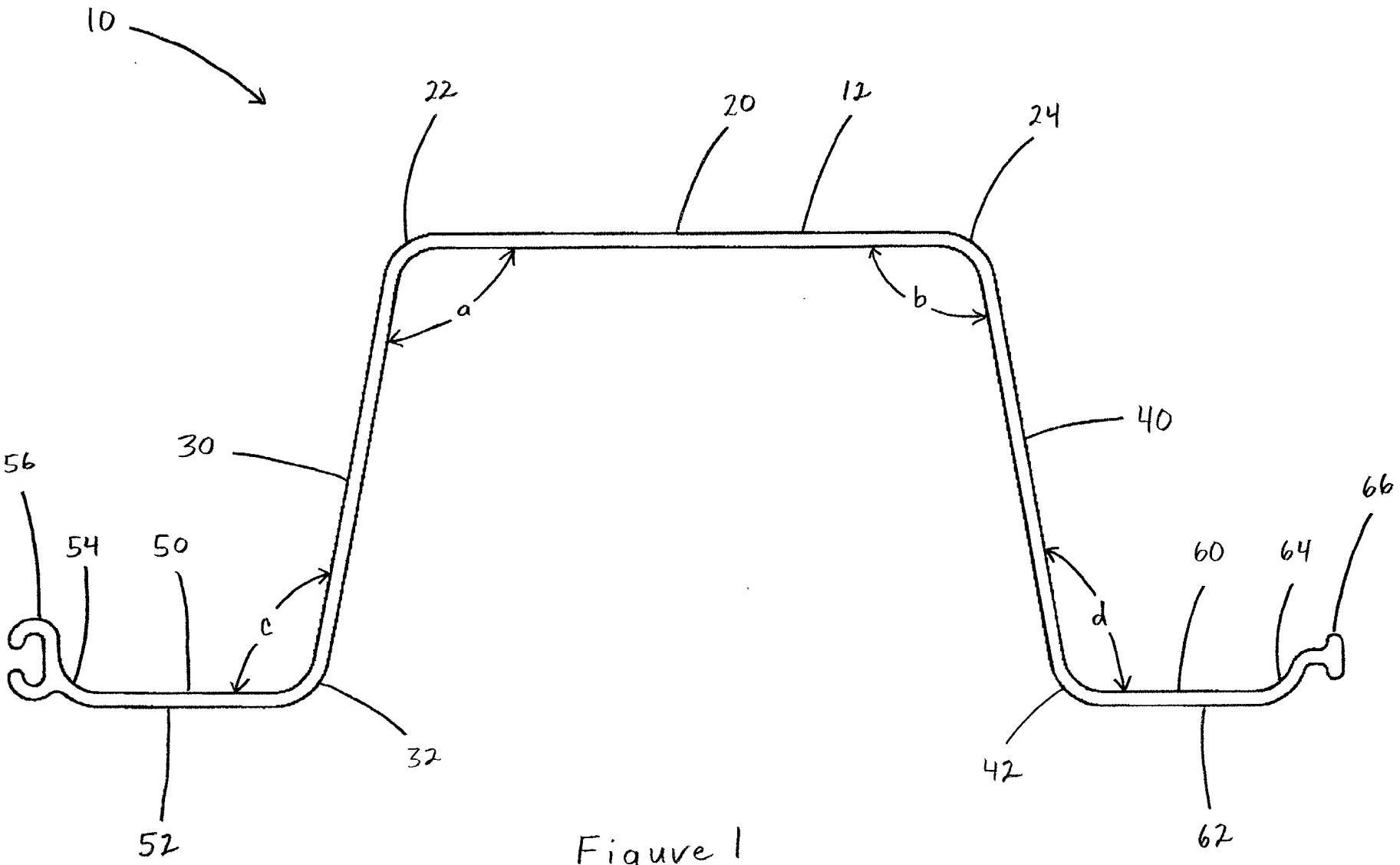

Figure 1

Figure 2

Figure 3

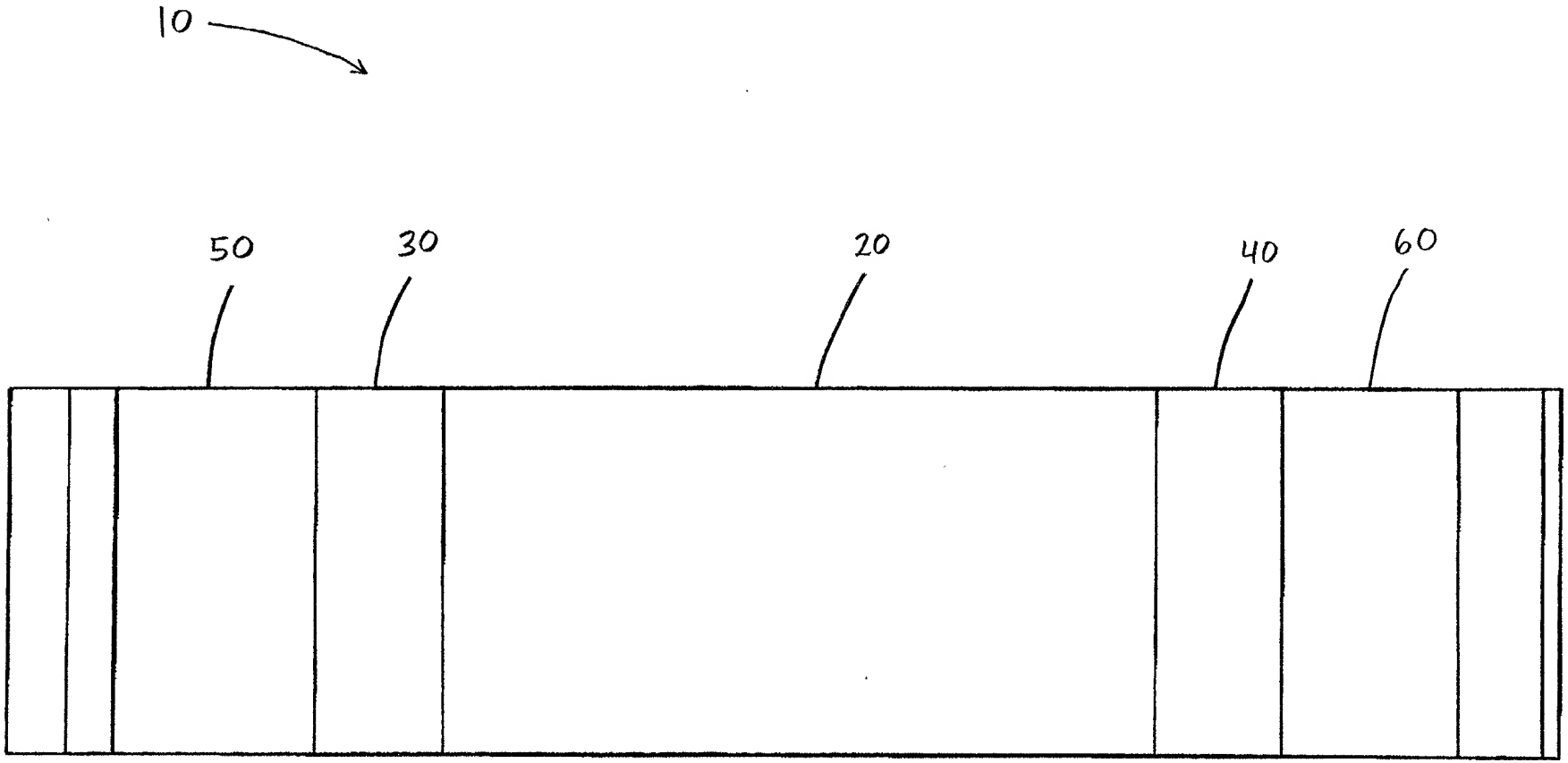

Figure 4

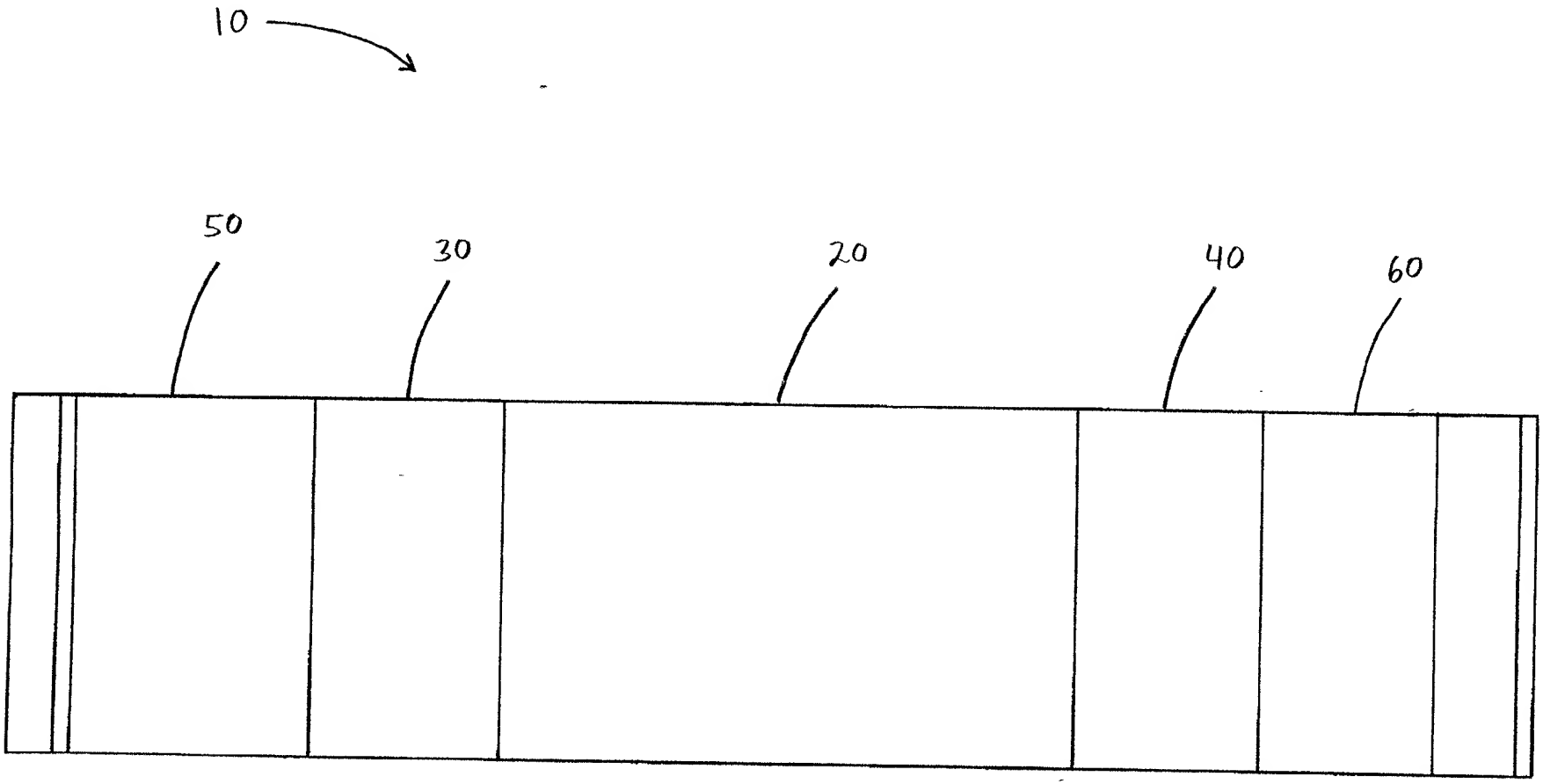

Figure 5

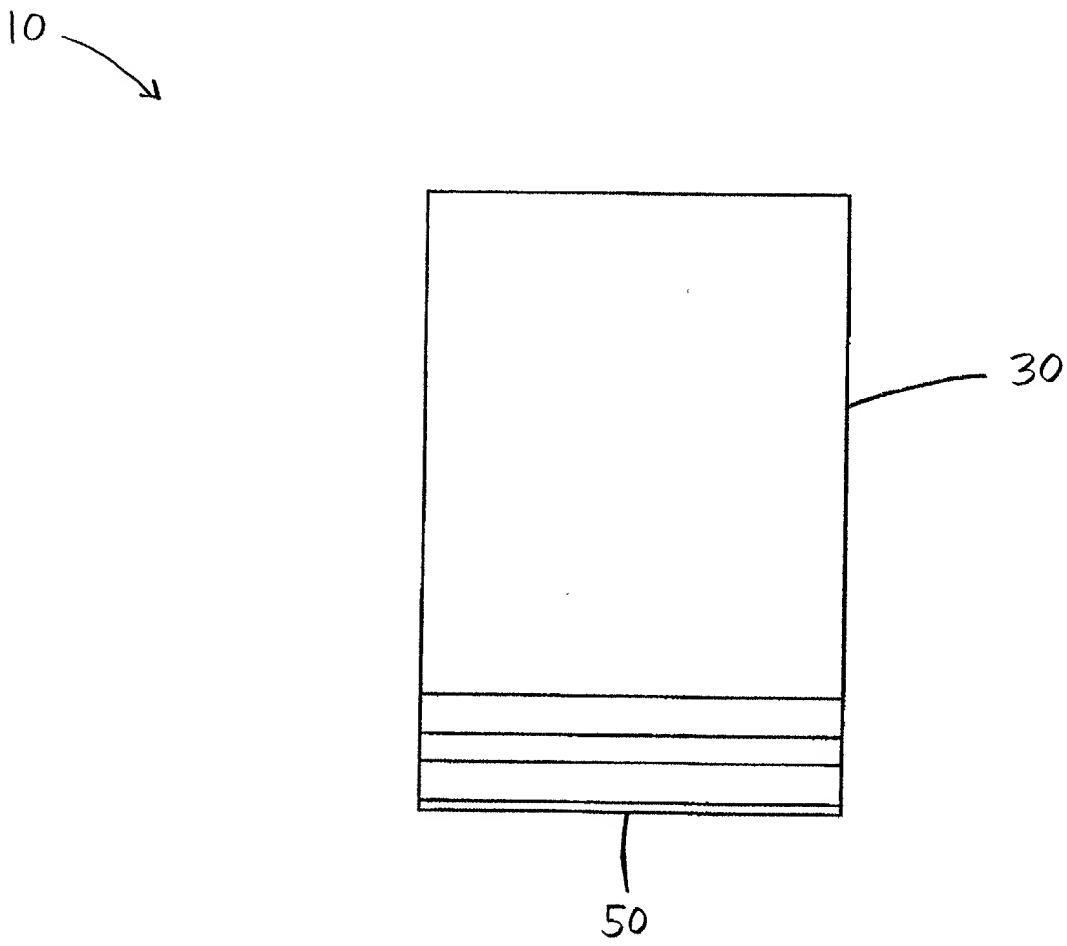

Figure 6

Figure 7

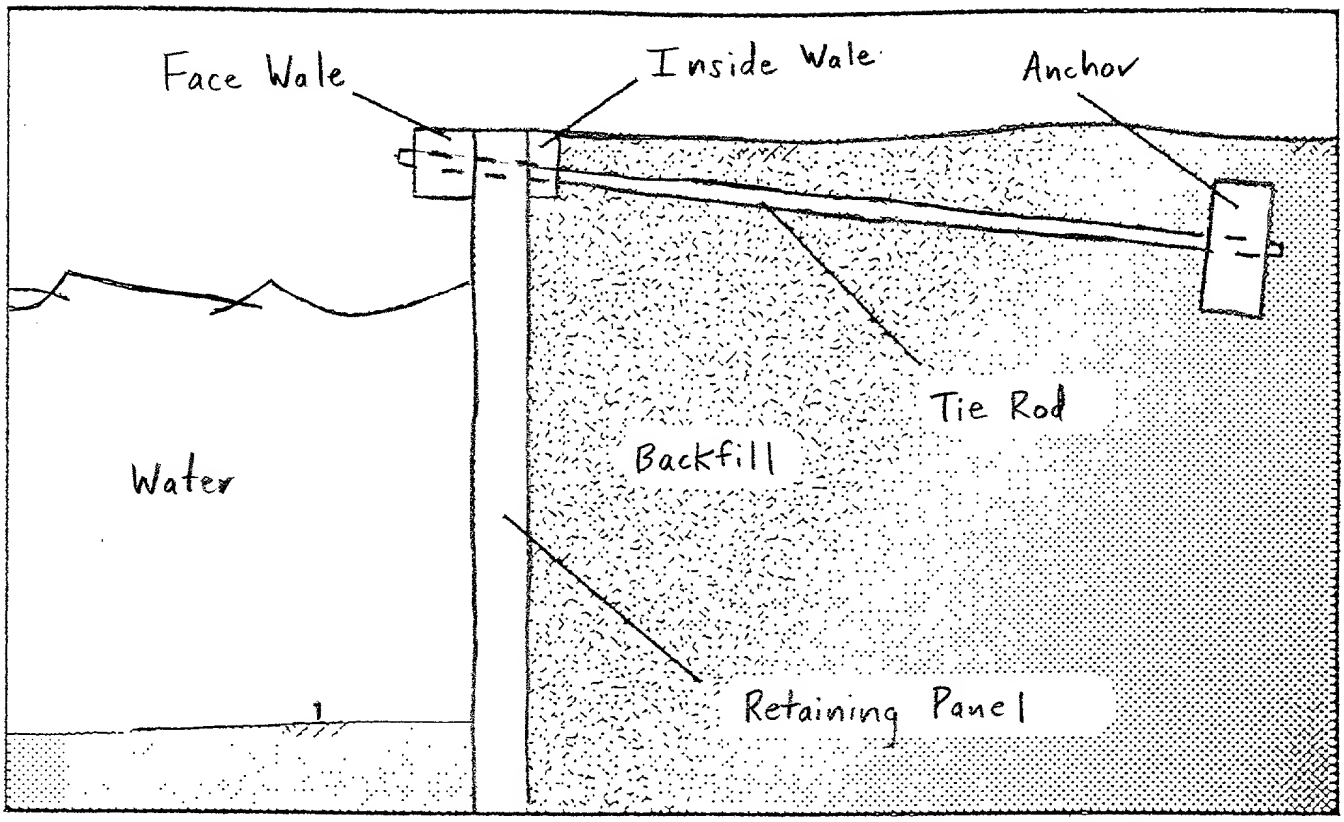
Face Wale
Inside Wale
Anchor
Tie Rod
Backfill
Water
Retaining Panel
1

Figure 8

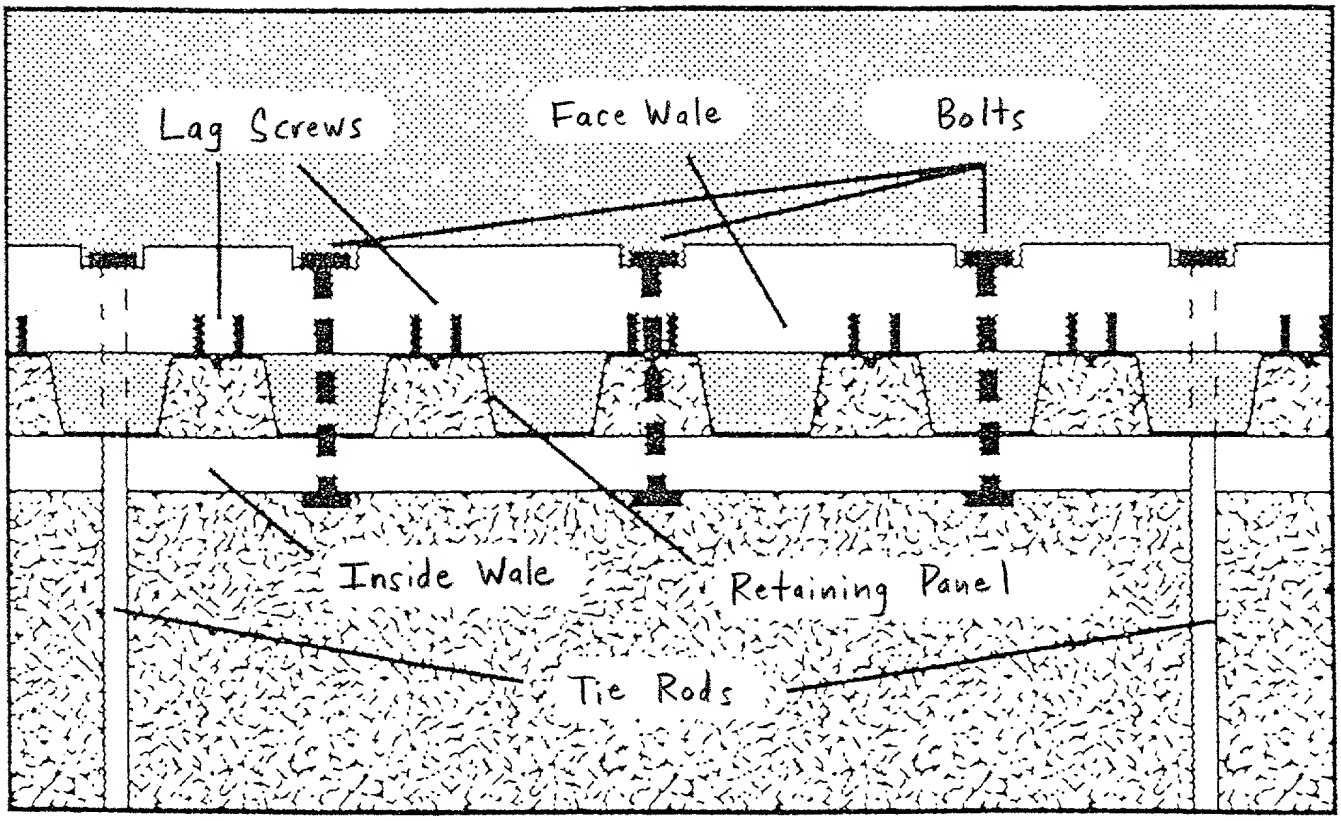
Lag Screws
Face Wale
Bolts
Inside Wale
Retaining Panel
Tie Rods

Figure 9

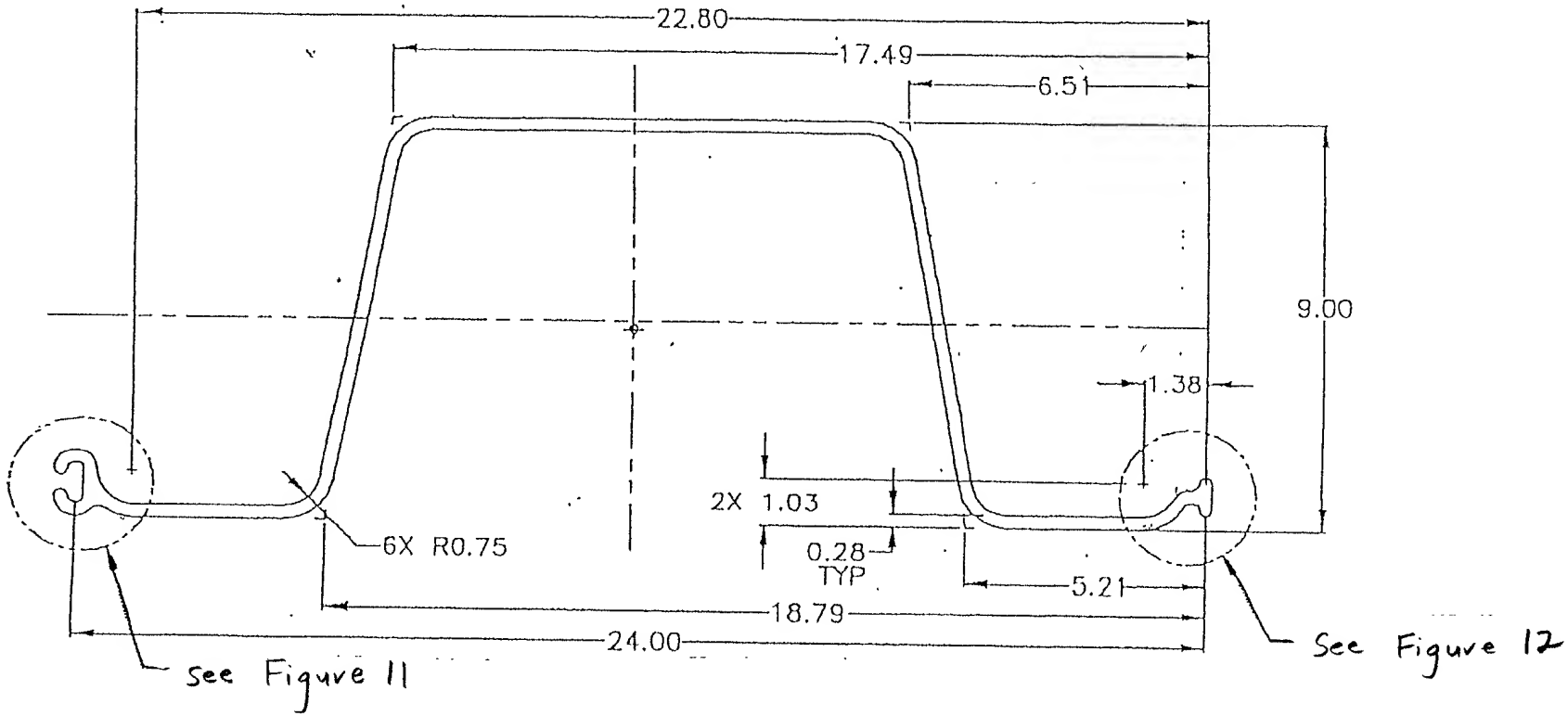
22.80
17.49
6.51
9.00
1.38
2X 1.03
0.28
TYP
6X R0.75
5.21
18.79
24.00
see Figure 11
See Figure 12

Figure 10

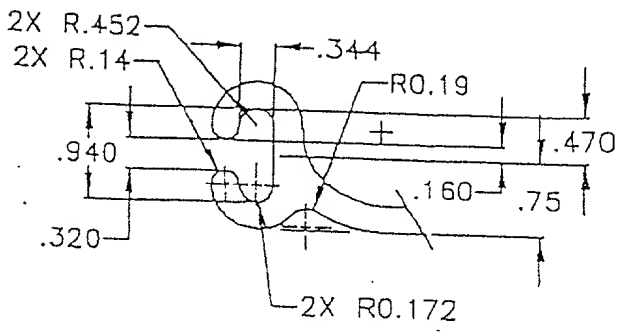

Figure 11

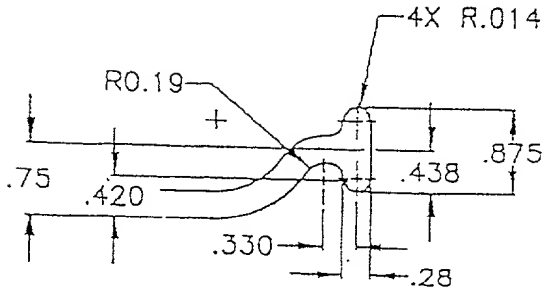

Figure 12

Express Mail No.: EL039910373US Date of Deposit: November 25, 1998

DECLARATION
AND
POWER OF ATTORNEY

As below named inventors, we hereby declare that:

Our residence, post office address and citizenship are as stated below next to our names.

We believe we am the original inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled SEAWALL PANEL the specification of which

(check one) [X] is attached hereto.
[ ] was filed on _____ as
Application Serial No. _____
and was amended on _____ (if applicable)

This application in part discloses and claims subject matter disclosed in my earlier filed provisional application no. 60/066,588, filed November 26, 1997.

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

We acknowledge the duty to disclose information which is material to the patentability of the invention claimed in this application, in accordance with Title 37, Code of Federal Regulations, §1.56(a) and (b).

We hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application listed below.

60/066,588	November 26, 1997
(Application No.)	(Filing Date)

We hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	[ ] Yes	[ ] No
(Number)	(Country)	(Day/Month/Year Filed)	[ ] Yes	[ ] No

We hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, we acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulation, §1.56(a) and (b) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending abandoned)

We hereby appoint Jeffrey S. Standley, Reg. No. 34,021 or Roger A. Gilcrest, Reg. No. 31,954, c/o Standley & Gilcrest, 495 Metro Place South, Suite 210, Dublin, Ohio 43017, Telephone No. (614) 792-5555 our attorneys, with full power in each of them, of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. All correspondence should be sent to the attention of **Jeffrey S. Standley** at the address above.

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application of any patent issued thereon.

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Date _____

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Date

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